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## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/780,438B

DATE: 11/21/2002

TIME: 10:08:29

Input Set : A:\EP.txt

Output Set: N:\CRF4\11212002\I780438B.raw

3 <110> APPLICANT: Qi, Xiaoyang  
5 <120> TITLE OF INVENTION: Fusogenic Properties of Saposin C and Related Proteins and  
Polypeptides  
6 for Application to Transmembrane Drug Delivery Systems  
8 <130> FILE REFERENCE: 60/181,754  
10 <140> CURRENT APPLICATION NUMBER: US 09/780,438B  
11 <141> CURRENT FILING DATE: 2001-02-09  
13 <150> PRIOR APPLICATION NUMBER: 60/181,754  
14 <151> PRIOR FILING DATE: 2000-02-11  
16 <160> NUMBER OF SEQ ID NOS: 4  
18 <170> SOFTWARE: PatentIn version 3.1  
20 <210> SEQ ID NO: 1  
21 <211> LENGTH: 38  
22 <212> TYPE: PRT  
23 <213> ORGANISM: Homo sapiens  
25 <220> FEATURE:  
26 <221> NAME/KEY: MISC\_FEATURE  
27 <222> LOCATION: (1)..(1)  
28 <223> OTHER INFORMATION: Where the amino acid located at 1 is a hydrophobic amino acid,  
29 including Val, Leu, Ile, Met, Pro, Phe, and Ala  
32 <220> FEATURE:  
33 <221> NAME/KEY: MISC\_FEATURE  
34 <222> LOCATION: (2)..(2)  
35 <223> OTHER INFORMATION: Where the amino acid located at 2 is an uncharged polar amino acid,  
36 including Thr, Ser, Tyr, Gly, Gln, and Asn  
39 <220> FEATURE:  
40 <221> NAME/KEY: MISC\_FEATURE  
41 <222> LOCATION: (5)..(5)  
42 <223> OTHER INFORMATION: Where the amino acid located at 5 is a hydrophobic amino acid,  
43 including Val, Leu, Ile, Met, Pro, Phe, and Ala  
46 <220> FEATURE:  
47 <221> NAME/KEY: MISC\_FEATURE  
48 <222> LOCATION: (8)..(10)  
49 <223> OTHER INFORMATION: Where the amino acids located at 8-10 are hydrophobic amino acids,  
50 including Val, Leu, Ile, Met, Pro, Phe, and Ala  
53 <220> FEATURE:  
54 <221> NAME/KEY: MISC\_FEATURE  
55 <222> LOCATION: (13)..(13)  
56 <223> OTHER INFORMATION: Where the amino acid located at 13 is a hydrophobic amino acid,

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57 including Val, Leu, Ile, Met, Pro, Phe, and Ala  
59 <220> FEATURE:  
60 <221> NAME/KEY: MISC\_FEATURE  
61 <222> LOCATION: (14)..(14)  
62 <223> OTHER INFORMATION: Where the amino acid located at 14 is an uncharged polar  
amino acid,

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63       including Thr, Ser, Tyr, Gly, Gln, and Asn  
 66 <220> FEATURE:  
 67 <221> NAME/KEY: MISC\_FEATURE  
 68 <222> LOCATION: (16)..(17)  
 69 <223> OTHER INFORMATION: Where the amino acids located at 16 and 17 are hydrophobic  
 amino acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 73 <220> FEATURE:  
 74 <221> NAME/KEY: MISC\_FEATURE  
 75 <222> LOCATION: (22)..(22)  
 76 <223> OTHER INFORMATION: Where the amino acid located at 22 is an uncharged polar  
 amino acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
 80 <220> FEATURE:  
 81 <221> NAME/KEY: MISC\_FEATURE  
 82 <222> LOCATION: (26)..(27)  
 83 <223> OTHER INFORMATION: Where the amino acids located at 26 and 27 are hydrophobic  
 amino acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 87 <220> FEATURE:  
 88 <221> NAME/KEY: MISC\_FEATURE  
 89 <222> LOCATION: (29)..(30)  
 90 <223> OTHER INFORMATION: Where the amino acids located at 29 and 30 are hydrophobic  
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 94 <220> FEATURE:  
 95 <221> NAME/KEY: MISC\_FEATURE  
 96 <222> LOCATION: (33)..(33)  
 97 <223> OTHER INFORMATION: Where the amino acid located at 33 is a hydrophobic amino  
 acid, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 101 <220> FEATURE:  
 102 <221> NAME/KEY: MISC\_FEATURE  
 103 <222> LOCATION: (35)..(35)  
 104 <223> OTHER INFORMATION: Where the amino acid located at 35 is an uncharged polar  
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 108 <220> FEATURE:  
 109 <221> NAME/KEY: MISC\_FEATURE  
 110 <222> LOCATION: (37)..(38)  
 111 <223> OTHER INFORMATION: Where the amino acids located at 37 and 38 are hydrophobic  
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 115 <400> SEQUENCE: 1  
 W--> 117 Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Lys Xaa  
 118     1                   5                   10                   15  
 W--> 121 Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp Lys  
 122     20               25                   30  
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 126     35  
 129 <210> SEQ ID NO: 2  
 130 <211> LENGTH: 39  
 131 <212> TYPE: PRT

132 <213> ORGANISM: Homo sapiens  
134 <220> FEATURE:  
135 <221> NAME/KEY: MISC\_FEATURE

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136 <222> LOCATION: (1)..(2)  
137 <223> OTHER INFORMATION: Where the amino acids located at 1 and 2 are hydrophobic  
amino acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
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142 <221> NAME/KEY: MISC\_FEATURE  
143 <222> LOCATION: (3)..(3)  
144 <223> OTHER INFORMATION: Where the amino acid located at 3 is an uncharged polar  
amino acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
148 <220> FEATURE:  
149 <221> NAME/KEY: MISC\_FEATURE  
150 <222> LOCATION: (6)..(6)  
151 <223> OTHER INFORMATION: Where the amino acid located at 6 is a hydrophobic amino  
acid, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
155 <220> FEATURE:  
156 <221> NAME/KEY: MISC\_FEATURE  
157 <222> LOCATION: (9)..(11)  
158 <223> OTHER INFORMATION: Where the amino acids located at 9-11 are hydrophobic amino  
acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
162 <220> FEATURE:  
163 <221> NAME/KEY: MISC\_FEATURE  
164 <222> LOCATION: (14)..(14)  
165 <223> OTHER INFORMATION: Where the amino acid located at 14 is a hydrophobic amino  
acid, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
169 <220> FEATURE:  
170 <221> NAME/KEY: MISC\_FEATURE  
171 <222> LOCATION: (15)..(15)  
172 <223> OTHER INFORMATION: Where the amino acid located at 15 is an uncharged polar  
amino acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
176 <220> FEATURE:  
177 <221> NAME/KEY: MISC\_FEATURE  
178 <222> LOCATION: (17)..(18)  
179 <223> OTHER INFORMATION: Where the amino acids located at 17 and 18 are hydrophobic  
amino acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
183 <220> FEATURE:  
184 <221> NAME/KEY: MISC\_FEATURE  
185 <222> LOCATION: (23)..(23)  
186 <223> OTHER INFORMATION: Where the amino acid located 23 is an uncharged polar amino  
acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
190 <220> FEATURE:  
191 <221> NAME/KEY: MISC\_FEATURE  
192 <222> LOCATION: (27)..(28)  
193 <223> OTHER INFORMATION: Where the amino acids located at 27 and 28 are hydrophobic  
amino acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
197 <220> FEATURE:

198 <221> NAME/KEY: MISC\_FEATURE  
199 <222> LOCATION: (30)..(31)  
200 <223> OTHER INFORMATION: Where the amino acids located at 30 and 31 are hydrophobic  
amino  
201        acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
204 <220> FEATURE:

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205 <221> NAME/KEY: MISC\_FEATURE  
 206 <222> LOCATION: (34)..(34)  
 207 <223> OTHER INFORMATION: Where the amino acid located at 34 is a hydrophobic amino acid,  
 208       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 211 <220> FEATURE:  
 212 <221> NAME/KEY: MISC\_FEATURE  
 213 <222> LOCATION: (36)..(36)  
 214 <223> OTHER INFORMATION: Where the amino acid located at 36 is an uncharged polar amino  
 215       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
 218 <220> FEATURE:  
 219 <221> NAME/KEY: MISC\_FEATURE  
 220 <222> LOCATION: (38)..(39)  
 221 <223> OTHER INFORMATION: Where the amino acids located at 38 and 39 are hydrophobic amino  
 222       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 225 <400> SEQUENCE: 2  
 W--> 227 Xaa Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Xaa Lys  
 228       1               5               10               15  
 W--> 231 Xaa Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp  
 232       20              25              30  
 W--> 235 Lys Xaa Cys Xaa Lys Xaa Xaa  
 236       35  
 239 <210> SEQ ID NO: 3  
 240 <211> LENGTH: 38  
 241 <212> TYPE: PRT  
 242 <213> ORGANISM: Homo sapiens  
 244 <220> FEATURE:  
 245 <221> NAME/KEY: MISC\_FEATURE  
 246 <222> LOCATION: (1)..(1)  
 247 <223> OTHER INFORMATION: Where the amino acid located at 1 is a hydrophobic amino acid,  
 248       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 251 <220> FEATURE:  
 252 <221> NAME/KEY: MISC\_FEATURE  
 253 <222> LOCATION: (2)..(2)  
 254 <223> OTHER INFORMATION: Where the amino acid located at 2 is an uncharged polar amino acid,  
 255       including Thr, Ser, Tyr, Gly, Gln, and Asn  
 258 <220> FEATURE:  
 259 <221> NAME/KEY: MISC\_FEATURE  
 260 <222> LOCATION: (5)..(5)  
 261 <223> OTHER INFORMATION: Where the amino acid located at 5 is a hydrophobic amino acid,  
 262       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 265 <220> FEATURE:  
 266 <221> NAME/KEY: MISC\_FEATURE  
 267 <222> LOCATION: (8)..(10)  
 268 <223> OTHER INFORMATION: Where the amino acids located at 8-10 are hydrophobic amino acids,  
 269       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 272 <220> FEATURE:

273 <221> NAME/KEY: MISC\_FEATURE  
274 <222> LOCATION: (13)..(13) ✓  
275 <223> OTHER INFORMATION: Where the amino acid located at 13 is a hydrophobic amino acid,

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276       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 279 <220> FEATURE:  
 280 <221> NAME/KEY: MISC\_FEATURE  
 281 <222> LOCATION: (14)..(14)  
 282 <223> OTHER INFORMATION: Where the amino acid located at 14 is an uncharged polar  
 amino  
 283       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
 286 <220> FEATURE:  
 287 <221> NAME/KEY: MISC\_FEATURE  
 288 <222> LOCATION: (16)..(17)  
 289 <223> OTHER INFORMATION: Where the amino acids located at 16 and 17 are hydrophobic  
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 290       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 293 <220> FEATURE:  
 294 <221> NAME/KEY: MISC\_FEATURE  
 295 <222> LOCATION: (22)..(22)  
 296 <223> OTHER INFORMATION: Where the amino acid located at 22 is an uncharged polar  
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 297       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
 300 <220> FEATURE:  
 301 <221> NAME/KEY: MISC\_FEATURE  
 302 <222> LOCATION: (26)..(27)  
 303 <223> OTHER INFORMATION: Where the amino acids located at 26 and 27 are hydrophobic  
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 304       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 307 <220> FEATURE:  
 308 <221> NAME/KEY: MISC\_FEATURE  
 309 <222> LOCATION: (29)..(30)  
 310 <223> OTHER INFORMATION: Where the amino acids located at 29 and 30 are hydrophobic  
 amino  
 311       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 314 <220> FEATURE:  
 315 <221> NAME/KEY: MISC\_FEATURE  
 316 <222> LOCATION: (33)..(33)  
 317 <223> OTHER INFORMATION: Where the amino acid located at 33 is a hydrophobic amino  
 acid,  
 318       including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 321 <220> FEATURE:  
 322 <221> NAME/KEY: MISC\_FEATURE  
 323 <222> LOCATION: (35)..(35)  
 324 <223> OTHER INFORMATION: Where the amino acid located at 35 is an uncharged polar  
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 325       acid, including Thr, Ser, Tyr, Gly, Gln, and Asn  
 328 <220> FEATURE:  
 329 <221> NAME/KEY: MISC\_FEATURE  
 330 <222> LOCATION: (37)..(38)  
 331 <223> OTHER INFORMATION: Where the amino acids located at 37 and 38 are hydrophobic  
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 332       acids, including Val, Leu, Ile, Met, Pro, Phe, and Ala  
 335 <400> SEQUENCE: 3  
 W--> 337 Xaa Xaa Cys Glu Xaa Cys Glu Xaa Xaa Xaa Lys Glu Xaa Xaa Lys Xaa  
 338 1                   5                   10                   15  
 W--> 341 Xaa Asp Asn Asn Lys Xaa Glu Lys Glu Xaa Xaa Asp Xaa Xaa Asp Lys

342	20	25	30
W--> 345 Xaa Cys Xaa Lys Xaa Xaa			
346	35		
349 <210> SEQ ID NO: 4			

RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/09/780,438B

DATE: 11/21/2002  
TIME: 10:08:30

Input Set : A:\EP.txt  
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Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 1, 2, 5, 8, 9, 10, 13, 14, 16, 17, 22, 26, 27, 29, 30, 33, 35, 37, 38  
Seq#:2; Xaa Pos. 1, 2, 3, 6, 9, 10, 11, 14, 15, 17, 18, 23, 27, 28, 30, 31, 34, 36, 38, 39  
Seq#:3; Xaa Pos. 1, 2, 5, 8, 9, 10, 13, 14, 16, 17, 22, 26, 27, 29, 30, 33, 35, 37, 38  
Seq#:4; Xaa Pos. 1, 2, 5, 8, 9, 10, 13, 14, 16, 17, 22, 26, 27, 29, 30, 33, 35, 37, 38

**VERIFICATION SUMMARY**  
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Input Set : A:\EP.txt  
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L:117 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0  
L:121 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:16  
L:125 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:32  
L:227 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:0  
L:231 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:16  
L:235 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:32  
L:337 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:0  
L:341 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:16  
L:345 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:32  
L:449 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:0  
L:453 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:16  
L:457 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:32